



WEEKLY OVERSIGHT REPORT

CH2MHILL

Weekly Summary Report

USEPA Oversight, Sauget Area 2, Sauget, IL

WA No. 224-RXBF-05XX / Contract No. 68-W6-0025

Week Ending Friday April 9, 2004

This report summarizes the Interim Remedial Action (IRA) work conducted by Solutia and its contractors from April 5 through April 9, 2004 at Site R, Sauget Area 2. The current IRA fieldwork consists of barrier wall trenching and backfilling.

Contractors Onsite

Inquip Associates Inc. (barrier wall construction contractor)
PSI (geotechnical testing subcontractor)
Lowry Electric (electrical contractor to Solutia)
URS (primary consultant for Solutia)
Zahner Survey (surveyors subcontracted to Inquip)

Work Performed This Week

Work at the site continued with a crew of Inquip operators and laborers performing site and trench maintenance activities. Barrier wall excavation continued during the week with an approximate 70 feet length of trench excavated to Koehring trackhoe depth (~ 70-80 feet below ground surface) on the east-west leg at the southernmost section of the barrier wall (near station 9+60), and the first panel south of the box culvert location was excavated to bedrock depth. Backfill materials were placed into the trench each day of the week.

Groundwater Migration Control System (GMCS)

During the week, the river elevation decreased from approximately 399.7 feet above mean sea level (amsl) on April 2 to 396.7 ft amsl on April 9, 2004. The combined flow rate of the GMCS was relatively stable during the week, with a rate of 710 gallons per minute (gpm) on April 9, 2004. The extraction wells pumped according to flow rates as dictated by the lookup table consistently throughout the week.

The eight barrier wall piezometers, with four inside and the other four outside the barrier wall alignment, continued to indicate water elevations lower than the river level during the week. Table 1 shows the river and piezometer water elevations measured on April 9, 2004 (3:00 PM).

At areas where the barrier wall is in place or partially in place, the water elevations at the piezometers located west (hydraulically downgradient) of the barrier wall were generally within one to three feet higher than those at the piezometers located east (hydraulically upgradient) of the barrier wall for the week. This does not apply to the two pairs of piezometers located at the north and south ends of Site R (P1S/P1N and P4E/P4S) where the barrier wall does not yet exist. The water elevations in these two pairs of piezometers were more similar, though the hydraulically upgradient piezometers generally maintained water elevations approximately one half foot lower than the hydraulically downgradient

piezometers. This is believed to be because of the current absence of barrier wall at these locations and also because each pair of these piezometers are aligned north-south, which is parallel to the river and perpendicular to the general groundwater flow direction.

Piezometer P2E was not recording water level elevations between April 7 (9:00 AM) and April 9 (10:00 AM) after the conduit and control wiring to the well was severed by a bulldozer in the backfill mixing area. The underground protective casing around the piezometer (two stacked manhole rings around the well) was also damaged. The piezometer control wiring was repaired on April 9, and water level elevations resumed measurement on that date. The protective casing surrounding the piezometer will be repaired next week. Additionally, between April 5 and 9, 2004, piezometer P4E was not reading water level elevations normally. The problem with the piezometer was repaired by URS by the close of the week.

On April 9, 2004 at approximately 9:00 AM, while pretrenching with the small trackhoe for the second panel in the barrier wall alignment to the south of the box culvert location, in the northwest corner of the site, the control wiring encased in conduit to all four downgradient piezometers (P1N, P2W, P3W, and P4W) and the river level gauge was broken. Excavation in the area immediately halted, extraction well pumping for the GMCS system was unaffected. The wiring and conduit was repaired by 3:00 PM on April 9, and the conduit was placed inside a metal pipe perpendicular to the barrier wall alignment. Water level elevations at these five locations were not recorded in the six hours during which the wiring was being repaired. Next week, URS intends to encase the metal pipe housing the control wiring in concrete to protect it during subsequent excavation in the area.

TABLE 1
River and Piezometer Water Elevations – April 9, 2004 (15:00 PM)

	Elevation (ft above mean sea level)
River Level	396.66
Piezometer 1S – inside wall (northern-most pair)	391.69
Piezometer 1N – outside wall (northern-most pair)	390.80
Piezometer 2E – inside wall (north-central pair)	391.56
Piezometer 2W – outside wall (north-central pair)	392.59
Piezometer 3E – inside wall (south-central pair)	390.52
Piezometer 3W – outside wall (south-central pair)	391.42
Piezometer 4E – inside wall (southern-most pair)	391.00
Piezometer 4W – outside wall (southern-most pair)	391.44

Stormwater

No stormwater accumulated at the site during the week. Approximately 150,000 gallons of stormwater pumped to the modutanks during the previous week was discharged to American Bottoms Treatment Facility, via the pipeline conveying pumped groundwater, on April 5, 2004.

Slurry Mixing

Approximately 43 tons of bentonite gel was used to mix slurry this week. The slurry, when pumped from the south holding pond to the panel excavation in the northwest corner of the site (south of the box culvert), was tested frequently to assess its viscosity and adjusted with a blending pump using water from the fire hydrant, as necessary. The viscosity of the slurry was measured using a Marsh funnel, with results obtained during the week generally satisfactory.

Spoils Handling

During the week, spoils were transferred from the southern portion of the exclusion zone adjacent to the barrier wall trench to the central portion of Site R, near station 24+00, for backfill mixing.

Barrier Wall Construction

Inquip continued excavation of the trench east of and near the south corner of the barrier wall alignment (station 10+60) with the Koehring 1266 trackhoe and the Liebherr 853 hydraulic clamshell rig during the week. The mechanical clamshell, Liebherr 855, excavated the first panel south of the box culvert, in the northwest corner of the site at station 30+70, to a total depth (bedrock) of 133 feet below ground surface during the week.

As of April 9, the open trench was approximately 1,380 feet in length along the barrier wall alignment from station 8+80 towards station 22+60 (please refer to Solutia's map for locations). In general, a small backhoe was used to excavate the first 10 feet, then the KH1266 trackhoe continued trenching up to 75 feet in depth, while the hydraulic clamshell rig was used subsequently to complete the excavation down to bedrock.

Fresh bentonite slurry was pumped into the panel south of the box culvert location as needed to keep the excavation open. Slurry was at times lost in this panel as it was excavated to depths greater than approximately 115 feet below ground surface. Slurry samples were collected from the top and the bottom of the trench daily; fresh and trench slurry samples were tested for viscosity, density (unit weight), filtrate loss, pH and sand content during the week. All eight bottom trench slurry samples and one of the four top trench slurry samples exceeded the viscosity specification (with results between 120 and 190 seconds to pass through the Marsh Funnel; the specification is between 40 to 100 seconds). The results for density, filtrate loss, pH, and sand content in these samples generally met the specifications.

During the week, Inquip mixed and placed into the trench approximately 1,500 cubic yards of backfill material. Backfill operations occurred on all five days worked this week. The backfill consists of spoils with the addition of approximately 2 percent granular bentonite in dry weight. The backfill was tested by PSI for slump, unit weight and moisture content. All test results reviewed met the minimum requirements. Additional tests on the backfill, including permeability and gradation, were to be tested offsite by Inquip's contract laboratory.

Backfill batches were mixed using the bulldozer and placed into the trench using a small trackhoe during the week. This change in backfill placement was implemented, in part, to accelerate the backfill operations. The modified placement technique was also necessary to lift and place the backfill over the berm that has formed on the sides of the trench adjacent to the backfill mix pad. Based on field observations, the backfill mix pad has decreased in elevation between one and three feet below ground surface in some areas, apparently

because the bulldozer removed underlying "native" soil in addition to backfill material during mixing activities. Specifications state that 'backfill mixing surfaces shall be reconstructed with borrow fill to prevent incorporating underlying soil into the backfill'. The decrease in elevation in the backfill mix pad was partially responsible for the damage to piezometer P2E (control wiring and below ground protective casing) that is located within the current backfill mix area.

The bottom of the trench at and ahead of the backfill toe (near station 11+30) was cleaned using the hydraulic clamshell rig on April 5 and 6, 2004 prior to the backfill operations. Depth-to-bottom measurements were made every 10 linear feet of trench to ensure the bottom of the trench was at a consistent depth and on top of bedrock. These depth measurements were performed with the clamshell rig's instrumentation and confirmed in two locations manually with the downrigger (plumbob on wire). During the remainder of the week, the bottom of the trench was not cleaned, reportedly to increase the stacking of the backfill in the southern corner of the trench, thus increasing stability. The trench will be cleaned in the upcoming week starting at least at station 11+30 to overlap the most recently cleaned section of trench. Two samples were collected by URS and PSI with a clam sampler from the top of the placed backfill in the trench prior to backfill placement daily throughout the week. These samples were visually checked to ensure that the backfill surface in the trench was clean and free of any sand.

- During the week, the trench depths were generally measured twice each day, in the morning and at the end of the day. The morning profile depicted only the south corner of the barrier wall trench, whereas the afternoon profile stretched the entire length of the open trench. The afternoon trench depth measurements were made every 100 linear feet of trench, with 20-foot spacing of measurements on either side of the backfill toe. The trench depth measurements from April 9 (after the backfill placement into the trench) are shown in Table 2. The trench profile is depicted in Graph 1, and is compared to the trench depth profile measured end of the previous week (April 2). Graph 2 shows the overall progress of the barrier wall construction. Additional stations were measured on April 9, following the re-survey of the center line of the trench by Zahner.
- Note that, at station 10+65, a sudden decrease in trench depth occurs over a narrow stretch (approximately six feet) along the trench profile. The soils at this location have been left in place in order to provide a support under the timber mats in the event that the clamshell rig needs to cross the trench to excavate the southern corner from the outside/west of the trench. (This will only be necessary if the inside/east of the trench experiences instability in the corner segment.)

Other Activities

Lowry Electric was onsite during the week to assist URS in repairing the piezometer and river gauge control wiring and conduits.

Zahner Survey were onsite during the week, the center line of the trench was re-surveyed with new station markers (stakes) placed as necessary to the side of the trench. The layout of the north corner of the barrier wall alignment was surveyed.

Excavation on the east end of the barrier wall trench, in the south of the site, is beginning to move into the potential 'debris area of concern'. Thus far during excavation in this area only a few bricks have been observed. During the pretrenching of some segments of this area, during 2003, some trash was found. The area of concern extends between approximately

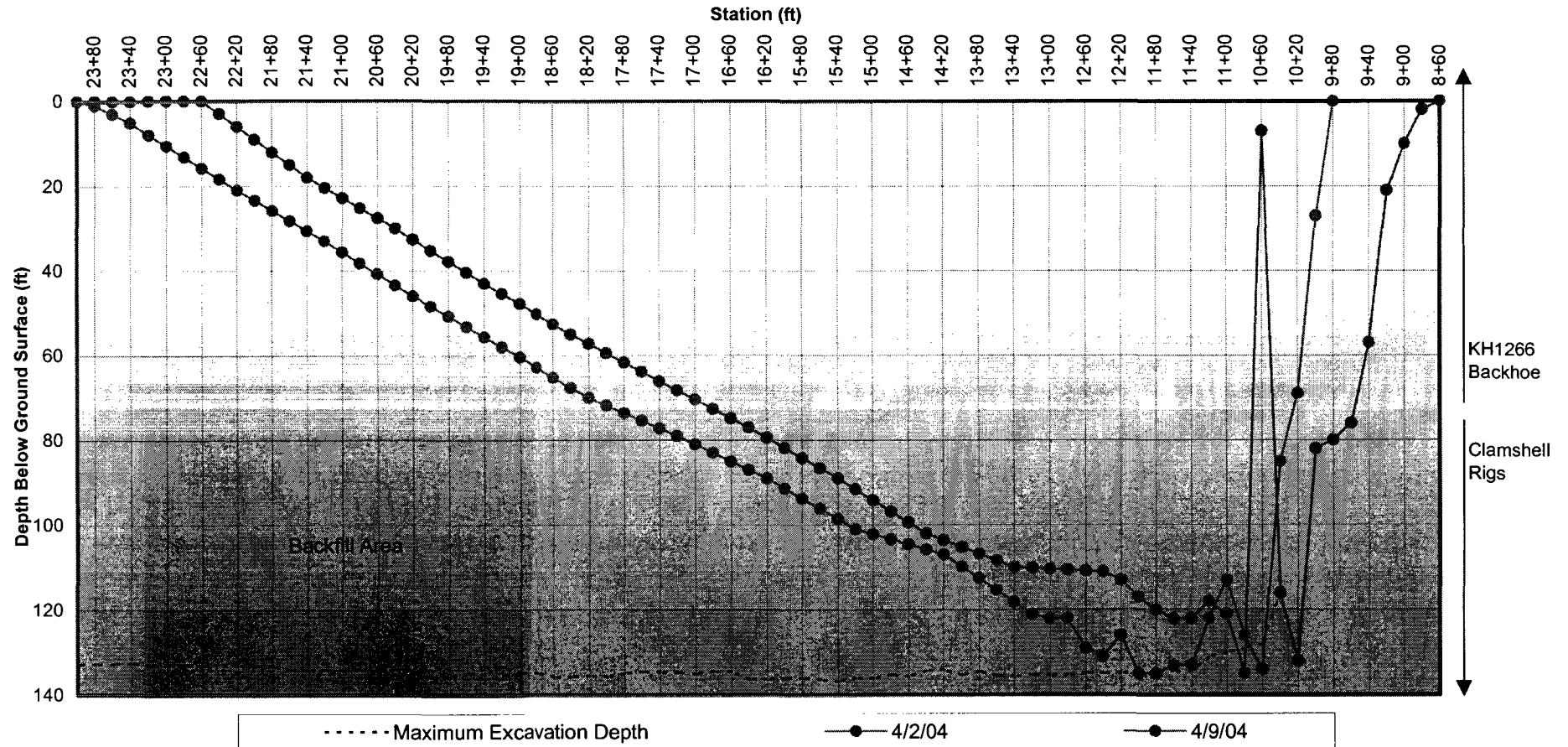
station 9+00 east to station 5+00. Solutia has a contingency plan in place in the event any potentially contaminant-related debris is encountered.

TABLE 2

Trench Profile (Downrigger Measurements) for the Barrier Wall Trench – April 9, 2004 (PM)

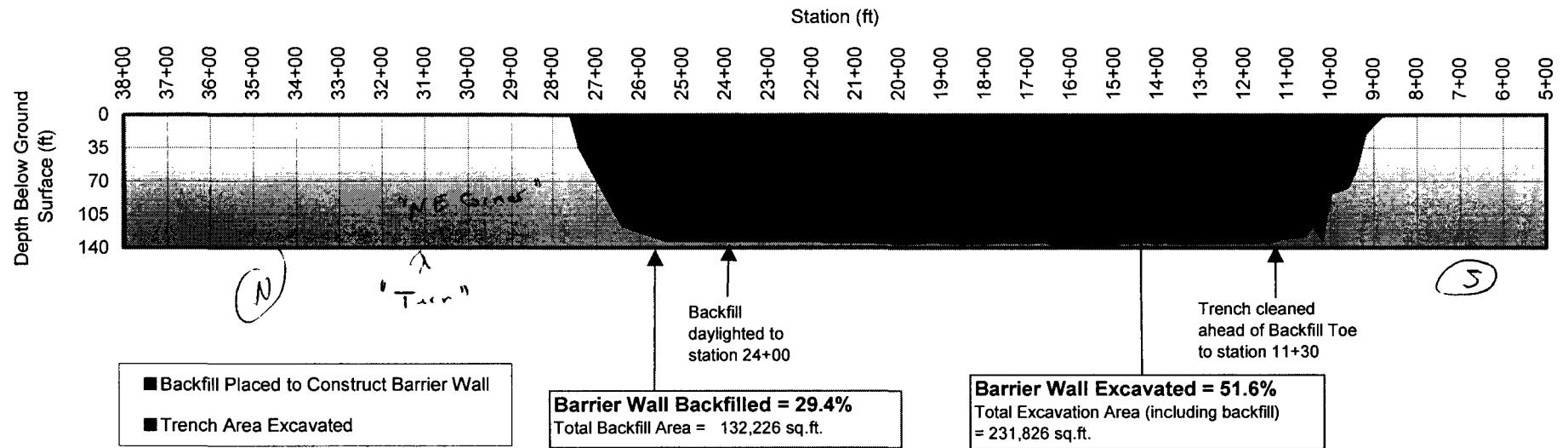
Station ID	Depth to bottom (ft below ground surface)
8+90	5
9+20	21
9+40	57
9+60	76
9+80	80
10+00	82
10+20	132
10+40	116
10+55	123
10+65	7
10+80	135
11+00	121
11+20	118
11+40	122
11+60	122
11+80	120
12+00	117
12+20	113
12+40	111
13+40	110
14+40	102
15+40	89
16+40	77
17+40	66
18+40	55
19+40	43
20+40	30
21+40	18
22+40	3
22+60	End of Trench / Daylighted Backfill

**Graph 1 - Weekly Barrier Wall Construction Progress
April 5 to April 9, 2004**



Note: Data plotted for week through AM measurements on 4-2-04 and PM measurements on 4-9-04.
Some data points are interpolated between the available data points where trench depth measurements were read.

Graph 2 - Barrier Wall Construction Progress by April 9, 2004 (PM)



Note: Data plotted for week through PM measurements on 4-9-04.

Photos from April 5 through April 9, 2004:



Broken piezometer wiring and conduit on the north end of Site R (April 9, 2004).



Backfill mixing with bulldozer and backfill placement in trench with trackhoe (April 9, 2004).